

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:** Casey, William**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-027847**Date Inspected:** 21-Jun-2012**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1930**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** As noted below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** SAS OBG**Summary of Items Observed:**

Quality Assurance Inspector (QA) Douglas Frey was at the American Bridge/Fluor (ABF) job site at Yerba Buena Island in California between the times noted above in order to monitor Quality Control functions and the in process work being performed by ABF personnel. The following items were observed:

Electroslag Weld Repairs Tower

This QA Inspector randomly observed ABF/JV qualified welder Wai Kit Lai #2953 performing the Flux Core Arc Welding with gas (FCAW-G) process utilizing a "Bug-O" motorized rail system with a magnetic base attached in the 3G Vertical position on ESW E face A initiated 6/19/2012. This QA Inspector observed QC Inspector Bernard Docena monitoring the welding to ensure the welding parameters (Amps, Volts, and Travel Speed) were in compliance pertaining to ABF-WPS-D15-3000-3-Repair. This QA Inspector noted that between passes the welder was cleaning the work using a small disc grinder as QC measured the inter-pass temperatures with Tempilstik Heat Indicators. At the time of the observations no issues were noted by this QA Inspector. This QA inspector made subsequent observations throughout the shift to monitor quality and noted that the work was completed on this date and appeared to be in general conformance to the contract requirements.

This QA Inspector randomly observed Shielded Metal Arc Welding (SMAW) in the 3G vertical position on tower shear plate designated as ESW weld, location "V" from face A at y+8650mm. ABF/JV qualified welder James Zhen #6001 was observed pre-heating the joint prior to welding and utilized 3.2mm E7018-H4R electrodes drawing amperage of 126. QC Inspector Bernard Docena was present to monitor the welding and the parameters as they pertain to ABF-WPS-D1.5-1000-Repair. Between passes the welder was observed cleaning the work using

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a small disc grinder as QC measured the inter-pass temperatures with Tempilstik Heat Indicators. On a subsequent observation, it was noted that the welder was continuing the in process welding. This QA Inspector noted that the 3.2mm electrodes were stored in electrically heated thermostatically controlled oven after removal from the sealed containers. The exposure limits of the electrodes appeared to comply with the minimum storage oven temperature of 120 degrees Celsius as per the contract documents. The welding parameters and surface temperatures were verified by the QC inspector's utilizing a Fluke 337 clamp meter to measure the electrical welding parameters. At the time of the observations no issues were noted by the QA. On subsequent observations throughout the shift to monitor quality, it was noted that the work was in progress and appeared to be in general conformance with the contract documents. Request for Weld Repair (RWR) 201206-038 was referenced during this observation.

13E Drop-in Panels (Interior)

This QA Inspector randomly observed the repair welding operations performed by ABF welder Edward Brown #9331 at 13E PP122.2 at y+2315, y+2590 and y+2090. The welder was observed using the Carbon Arc Gouging (CAG) process to excavate the sites. Upon removal of the discontinuities, QC Inspector Salvador Merino performed Magnetic Particle Testing (MT) to ensure soundness of the metal and observed no relevant indications and recorded the dimensions of the excavations. The welder was observed depositing metal by utilizing the SMAW process in the 4G overhead position employing 3.2mm E7018-H4R electrodes drawing amperage of 129 as pertaining to ABF-WPS-D1.5-1004-Repair. This QA Inspector verified that the electrodes were obtained from a baking oven at the correct temperature and within acceptable exposure limits. The welders were observed cleaning the start/stop edges of the work utilizing small disc grinders and compressed air and restored the base metal to the original surface and ground smooth, and the welds to their specific profiles. Post Weld Heat Treatment (PWHT) was applied to each completed weld surface at 230°C (450°F) for a period of 1 hour in accordance with Section 12.15 of AWS D1.5-2002. The repairs were completed on this date.

This QA Inspector randomly observed ABF/JV qualified welder Steven Davis #7889 performing SMAW using 3.2mm" diameter E7018-H4R electrodes and implementing Caltrans approved WPS ABF-WPS-D1.5-1080-Revision 1. The joint being welded was Bracket 1 (BR1) a complete Joint Penetration (CJP) welded in the 3G Vertical and 4G Overhead positions. During welding, ABF QC Salvador Merino was noted as monitoring the welding parameters. Welding parameters were recorded as A=125. This QA Inspector noted that between passes the welder was cleaning the work using a small disc grinder as QC measured the inter-pass temperatures with Tempilstik Heat Indicators. At the time of the observations no issues were noted by this QA Inspector. On subsequent observations to monitor quality, it was noted that the work was completed and appeared to be in general conformance with the contract documents.

This QA inspector observed at random intervals ABF/JV qualified welder Richard Garcia #5892 performing SMAW in the 4G Overhead position with E9018-M-HR electrodes drawing amperage of 127 utilizing the Caltrans approved Welding Procedure Specification ABF-WPS-D1.5-1162-4. The welds are Partial Joint Penetration (PJP) butt joint splice Deck Stiffener Flange (DSF) to Longitudinal Stiffener-3 (LS-3). The weld surface and surrounding area was brought to temperature by the use of a gas torch and the preheat temperature was confirmed by ABF personnel prior to welding. The ABF Quality Control (QC) Salvador Merino was noted monitoring the welding parameters during welding. The welding at this location was observed to be completed prior to the end of the QA inspectors shift.

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Summary of Conversations:

Conversations were relevant to welding performed and information unique with each location.



Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy 510-385-5910 , who represents the Office of Structural Materials for your project.

Inspected By:	Frey,Doug	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer
